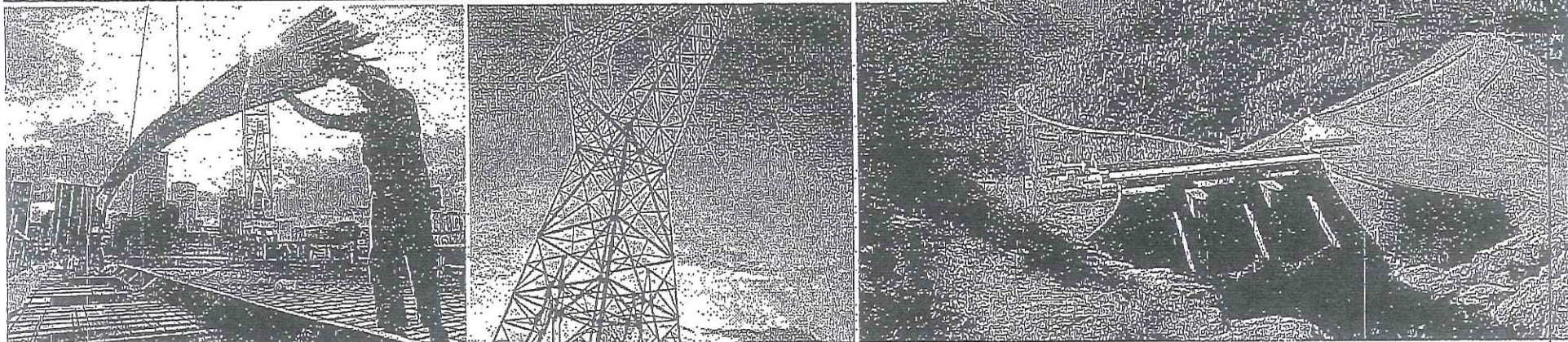


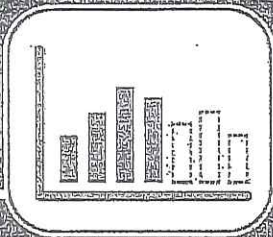
# RATES WORKING GROUP



**BC Hydro**   
FOR GENERATIONS

SESSION 1, AUGUST 23, 2013 PRIVILEGED AND CONFIDENTIAL





# RATE FORECAST AND REVENUE REQUIREMENTS

**BC hydro** 

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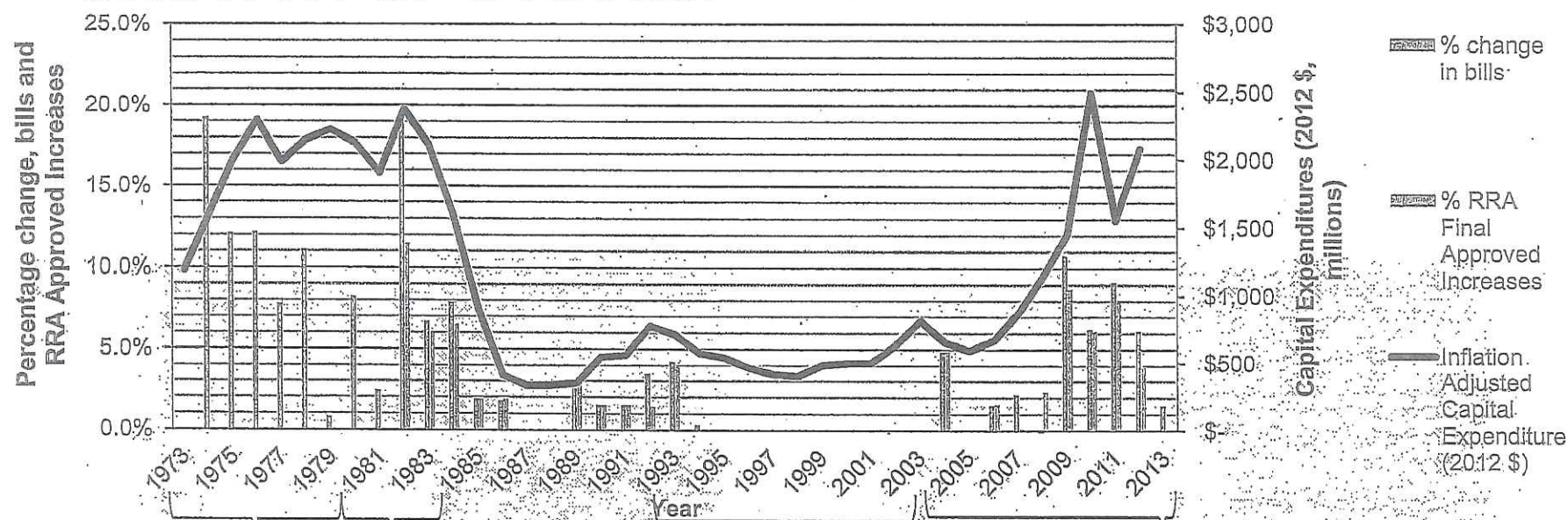
# HISTORICAL RATE INCREASES

Closest Calendar Year	RRA Final Approved Increases
1993	3.90%
1994	0.00%
1995	0.00%
1996	0.00%
1997	0.00%
1998	0.00%
1999	0.00%
2000	0.00%
2001	0.00%
2002	0.00%
2003	0.00%

Closest Calendar Year	RRA Final Approved Increases
2004	4.85%
2005	0.00%
2006	1.54%
2007	0.10%
2008	2.34%
2009	8.74%
2010	6.11%
2011	8.00%
2012	3.91%
2013	1.44%



## INCREASES IN 1970S & 1980S REFLECTED GROWTH OF SYSTEM



### Inflation, High Interest Rates & Oil Crises

- Construction on Mica, Peace River, Seven Mile, & Revelstoke & associated Transmission Lines
- 1970s oil crises lead to move away from hydrocarbon resources and forecasts of increased demand

### BC Hydro Regulated, Canada in Recession

- BCUC created in 1980, first RRA in 1982
- High unemployment, value of Canadian dollar drops, oil prices fall
- BC Hydro future build plans scaled back due to lower electricity forecasts and surplus domestic electricity

### Rate Freeze, Preparing for Deregulation & Market Restructuring

- US markets opening up & unbundling of electricity services
- Provincial government introduces rate freeze 1996, but effectively no increases for a decade, starting in 1993

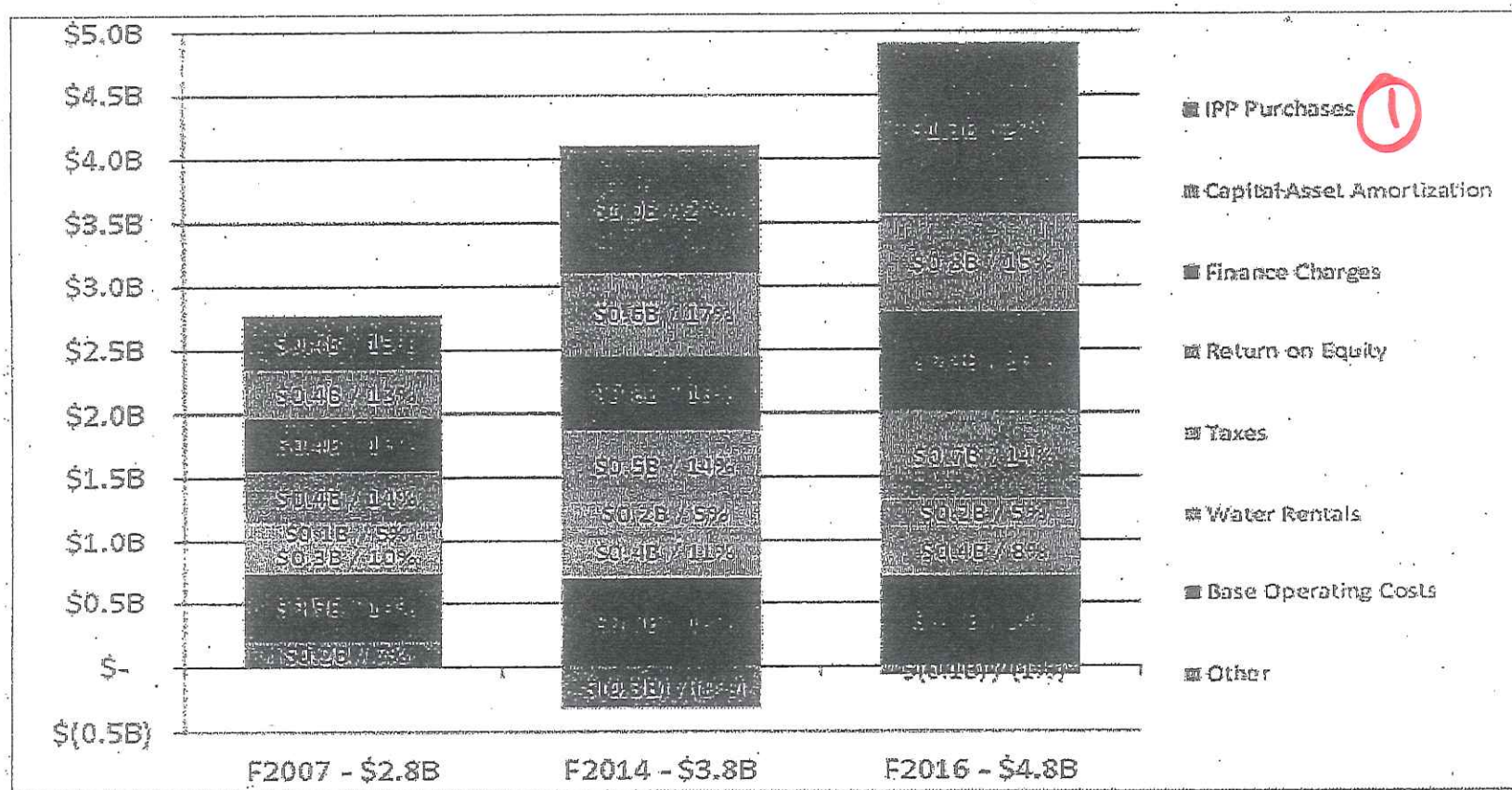
### Clean Renewable Resources

- 2002 Energy Plan focus on new supply from clean resources & 2007 Energy Plan self sufficiency by 2016
- Re-investment in existing heritage assets – Revelstoke 5, Aberfeldie
- Rate freeze over in 2004
- Purchase of 1/3 interest in Waneta in 2010 for \$850M



## REVENUE REQUIREMENT

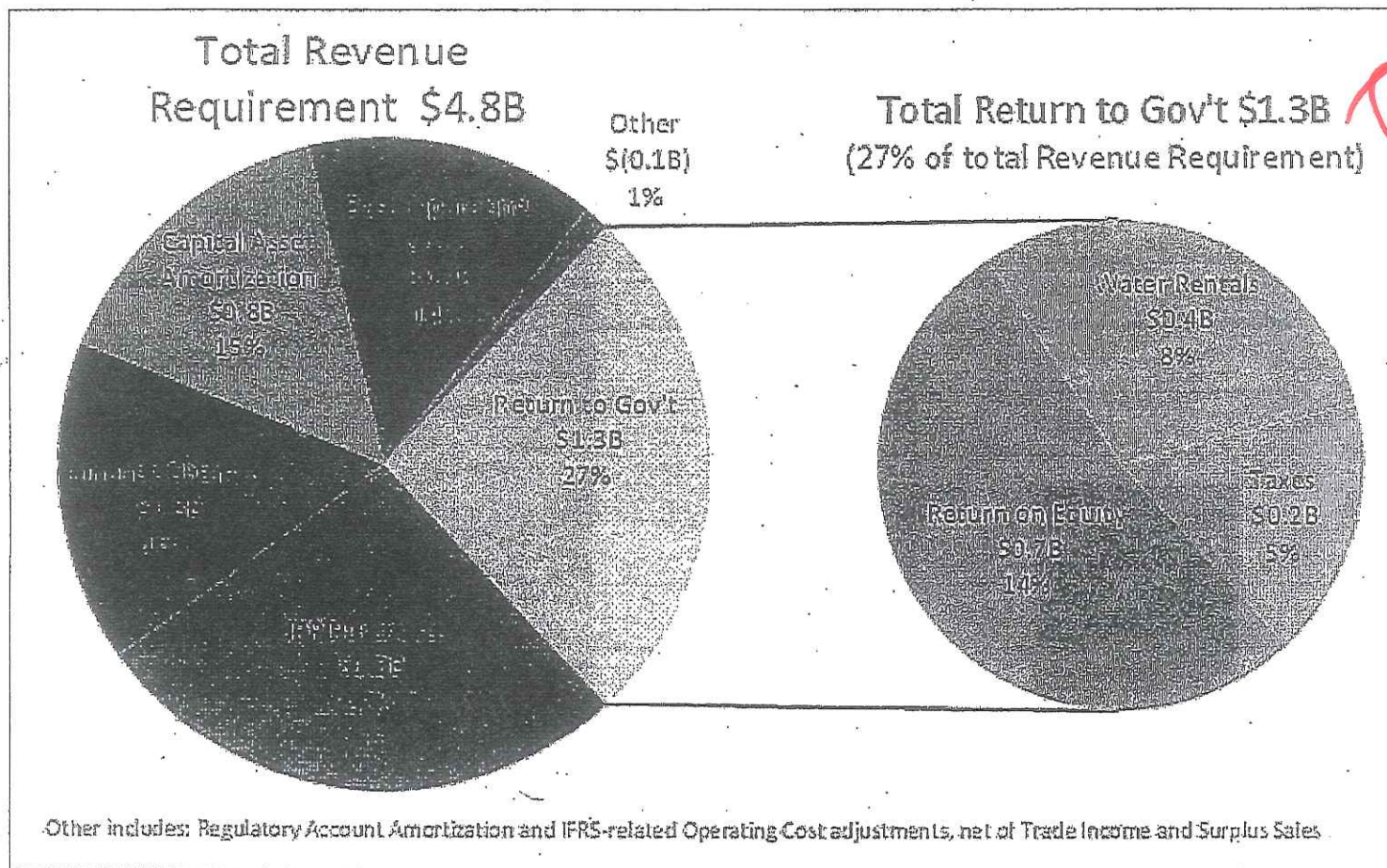
- Projected to increase from approximately \$3.8 billion in F14 to \$4.8 billion in F16, resulting in projected rate increases of 26.4% for the F15-F16 period (19.2% in F15 and 6.0% in F16).



Note: F07 has not been restated for BCTC integration which moved some costs formerly recorded as energy costs to operating costs.



## COMPOSITION OF F16 REVENUE REQUIREMENT



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## F15-F16 RATE FORECAST AND DRIVERS

Rate Increase %	F15	F16	F15-F16 Cumulative	F17
Current Forecast (unsmoothed)	19.2	6.0	26.4	8.4
Current Forecast (smoothed)	14.5	14.5	31.1	4.4

- Approximately 42% of the rate increase relates to growth (mainly growth capital additions and IPP purchases).
- Most of the cost increases in F15-F16 are fixed and committed:
  - Increases related to capital additions, IPP commitments (64%)
  - Rate smoothing from the F12-F14 ARRA (16%)
  - Regulatory account amortization, financing costs on existing debt (17%)
- Cumulative rate increases for F15-F16 are higher when smoothed because revenues collected are lower in F15 than required to fully cover costs in that year. Revenues collected in F16 must make up for the under collection in F15 as well as collect required revenues for F16.

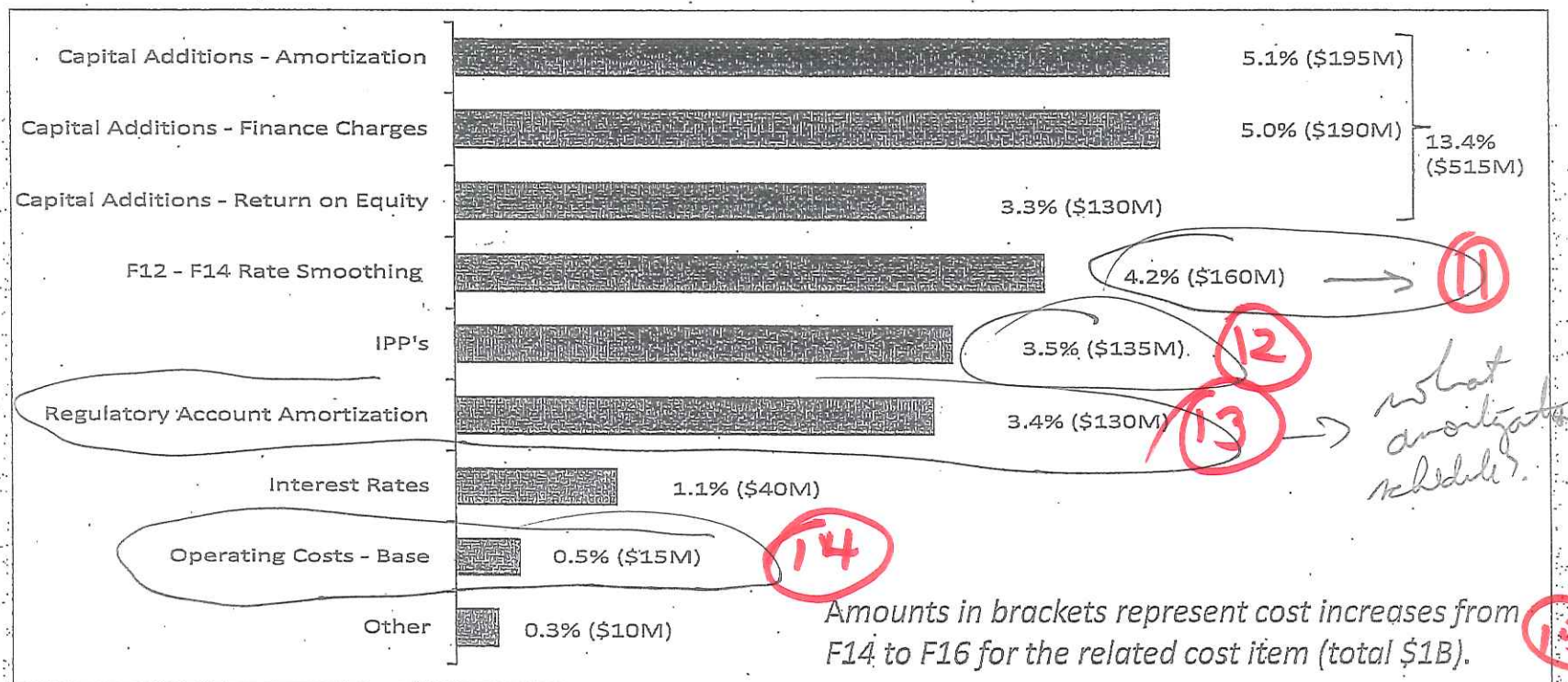
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## F15-F16 CUMULATIVE RATE INCREASE (26.4%)

- Contribution of cost items to the forecast cumulative rate increase of 26.4% for F15-F16.





## RATES STABILIZE OVER F18-F22 PERIOD

	F15	F16	F17	F18	F19	F20	F21	F22	F23	F24
Annual Rate Increase (%)	19.2	6.0	8.4	1.7	2.8	3.4	2.1	1.9	7.7	4.1

- Load increases by approx. 1% per year (before expected LNG load and after DSM) 16
- Cost of energy flattens out as most IPP purchases come on-line by F17 17
- Capital additions remain stable and average approx. \$2 billion per year (excluding Site C) 18
- Interest rates are assumed to remain at F17 levels
- Revenue requirement continues to increase:
  - \$40 million = 1% rate increase in F15
  - \$75 million for 1% rate increase by F24

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## COMPARISON WITH OTHER UTILITIES

- BC Hydro currently first quartile in each rate class in the 2012 Hydro Quebec Study.
- BC Hydro's monthly Residential and Large Power bills would have to increase 17% and 12% respectively to move into the 2nd quartile; assuming bills of other utilities stay the same.
- Monthly Medium Power bills would have to increase 3% to move from the first to the second quartile.

BC Hydro Customer Class	Quartile	Ranking within Quartile	Avg. Monthly Bill (\$)	Example of 2 <sup>nd</sup> Quartile Monthly Bill (\$)	% Increase
Residential	1	4	88	103	17
Medium Power	1	4	28,302	29,207	3
Large Power	1	4	1,525,576	1,713,206	12

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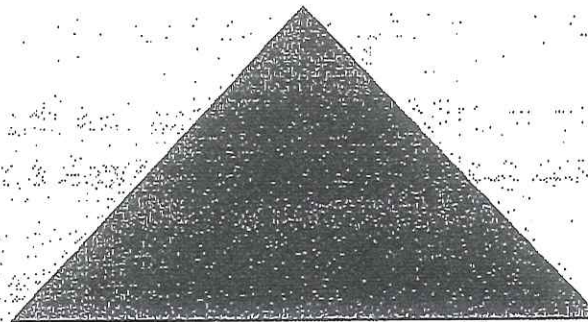


## CHALLENGES AND CONSIDERATIONS

- There are three mechanisms to use when the revenue requirement increases:

19

Increase Rates



Lower Revenue Requirement  
(includes BCH costs and contributions to Gov't)

Increase Regulatory Accounts

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## CHALLENGES AND CONSIDERATIONS

### 1. F12-F14 rate mitigation by BC Hydro

20

- On track to reduce operating costs by over \$390 million by next March
- Delayed \$800 million in capital additions
- Eliminated approximately 800 roles, mainly in non-operational functions, while filling an additional 150 roles (operational "lights on")

### 2. BC Hydro actions beyond Government Review

- IPP contract management
- Capital plan review and reduction
- Organizational structure review

21

### 3. Options to mitigate F15-F16 rate increases are limited

22

- IPP contracts are committed
- Large amount of capital is required and large projects are well underway
- Recovery of F12-F14 rate smoothing
- Government committed to amounts in current fiscal plan



## CHALLENGES AND CONSIDERATIONS

### 4. Opportunities could be available starting in F17

23

- Delay capital and take on increased risk
- Impact Government Fiscal Plan
- Minimize operating cost impacts and continue to increase efficiency

### 5. Considerations

- Operating cost pressures are exceeding inflation – assumption included in current forecast is half of inflation
- Risk that interest rates may increase faster than forecast
- Near term rate mitigation may only be possible by increasing regulatory accounts
- Short term rate increase bubble - over longer term rate increases are smaller and stable
- Gov't Review recommended BCH and Gov't determine collaboratively water rental rates and capital structure to support debt/equity ratio and dividend

24

25

26

27



## REGULATORY PROCESS RISK



1. Leads to uncertainty on rates and Government Fiscal Plan
2. With the current rate forecast, the BCUC is likely to enforce rate mitigation mechanisms and/or disallow certain costs
  - IPP contracts
  - Regulatory Accounts for First Nations, Rock Bay, Home Purchase Option Plan
  - Rate stabilization regulatory account

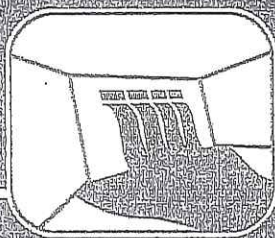


## RATE IMPACT ON CUSTOMERS

29

- BC Hydro's Revenue Requirement is allocated amongst customer classes based on a fully allocated cost of service study.
- Top 5 industrial customers account for approx. 10% of total sales volume and 8% of total domestic tariff revenues.
- A 10% increase in customer rates increases total annual costs for these five customers by \$30M.
- For Residential customers, a 10% rate increase results in average annual bill increase of \$105, and Small Commercial customers an average annual bill increase of \$240.
- Rate increases are felt much more significantly by those customers on a fixed income.





## COST OF ENERGY: IPPs

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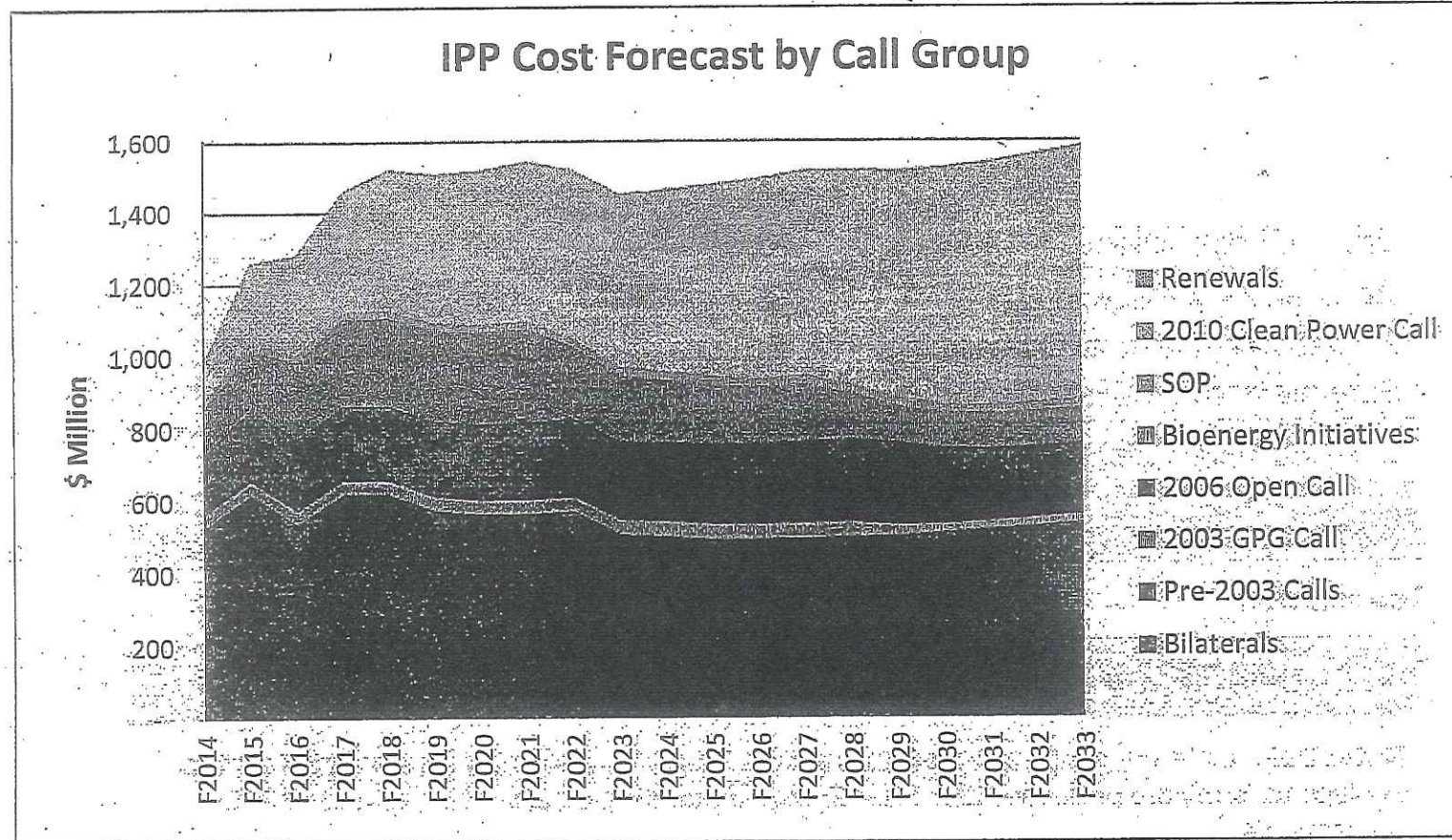
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## IPP ENERGY AND COSTS WILL CONTINUE TO INCREASE THROUGH F18

30

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# PROFILE OF IPP PROJECTS

31

Status	# of Projects	Plant Capacity (MW)	Total Energy (GWh/y)
In-Service	81	3,498	15,217
<b>Pre-COD Projects</b>			
Under Construction	20	1,139	3,734
Deferred/Downsized	9	454	1,511
Potential for Deferral/Downsizing	6	202	1,095
Potential for Termination	4	38	157
Sub-Total Pre-COD	39	1,833	6,497
<b>TOTAL</b>	<b>120</b>	<b>5,331</b>	<b>21,714</b>
Terminated	10	358	1,623
<b>TOTAL (incl. Terminated)</b>	<b>130</b>	<b>5,690</b>	<b>23,337</b>

**Note:** Data for Terminations and Deferrals include projects where an Agreement in Principle is in place to terminate or defer COD. Total Energy amounts are before firming and attrition adjustments.

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32

## CONTRACT MANAGEMENT APPROACH

Existing EPAs represent a nominal commitment of \$52B (attrition adjusted)

- \$32B of that commitment relates to Pre-COD EPAs
- \$7B of that commitment relates to projects that have been, or will be deferred, downsized or terminated by mutual consent
- Successful implementation would reduce commitments by about \$1B present value



## CONTRACT MANAGEMENT APPROACH

43

Rates will be, on average, **1.2% lower<sup>1</sup>** than they otherwise would be in F2014 to F2022, depending on how much of the contract commitments are actually fulfilled.

- Based on comparison of current expected contractual commitment versus expected commitment after implementation of plan
- Includes adjustment for resulting reduction in sales of surplus energy
- Largest benefit is expected in F2017 due to impact of deferrals

44

<sup>1</sup> This reduction is already included in the current rate forecast



Rates Working Group Document  
August 23 2013

Annotations

**p 7 note 1:**

note the contribution of IPP purchases to the increase in revenue requirement from F07 to F14 to F16, and especially the massive increase in that block from F14 to F16 (it is already the largest single component in the stacked bar graph by F14)

**p. 8 note 2**

total return to government in F16 is \$1.3B of a total \$4.8B revenue requirement (defined as the total amount of revenue that BC Hydro has to obtain in the fiscal year to cover all of its operating costs, capital costs, dividends and taxes, etc.)

The government's total take from BC Hydro will reach 27% of its total revenue requirement by F16.

p. 9 note 3

The first line in this chart shows the rate increases which would flow if BC Hydro's costs were covered by rates each year in the normal course, without shifting costs from one year to the next to average or smooth the increases.

p. 9 note 4

The second line is a smoothed forecast in which the F15 and F16 increases are averaged (at 14.5%). Note that this produces a higher cumulative total financial hit for ratepayers than the first (unsmoothed) line would produce. (see note 10)

Note also the drop to 4.4% in F17. That fiscal year begins April 1, 2017 and is the fiscal year in which the next provincial election will be held. The "smoothed" version reduces the increase which would normally occur in that year by nearly one-half compared with the unsmoothed projection.

p. 9 note 5

This page does not disaggregate capital growth and IPP purchases. Later sheets provide better break-down. Note that "IPP purchases" does not mean the cost of new contracts with IPPs entered into from F14 onward; in fact, the document incorporates the recently-announced cancellation of some IPP contracts (se we will see later).

BC Hydro and its ratepayers do not begin paying for IPP contracts until they become operational (just as is the case, for the most part, for BC Hydro's own capital projects).



Past waves of IPP contracts are coming into service over the next few years and become felt in revenue requirements and rates as this occurs. The rate pressures from IPPs referred to in note 5 are all previously-made contractual commitments. There are no projected additional market calls by Hydro to IPPs for new projects or supply.

p. 9 note 6

As this bullet notes, most of the projected rate pressure arises from fixed and committed costs and obligations.

p. 9 note 7

Fixed and committed capital additions make up 64% of the total rate pressure.

p. 9 note 8

The cost of deferring the increases which BC Hydro applied for in 2012, and which were set aside by the government in favour of lower increases decreed by order in council, amounts to 16% of the pressure on rates in F15-16.

p. 9 note 9

The cost of servicing the accumulated deferral accounts and other debts of BC Hydro constitutes 17% of the rate pressure. The deferral of necessary increases in 2012 had a double impact. First, the deferred costs still remain to be collected on a postponed basis. They did not go away, but were pushed into these future fiscal years.

Second, the deferral of those costs by the order which suspended the rate hearing means that they are added to the accumulating load of deferrals and therefore attract interest. So they contribute to the pressures described in both notes 8 and 9.

p. 9 note 10

As is noted above, deferring collection of current costs has a price. In the case of “rate soothing” (note 4) this is the distinction between the F15-16 cumulative rate forecast, as between note 3 (unsmoothed) and note 4 (smoothed).

p. 10 note 11

Here we see the quantification of the rate impact of the various factors. The bar net to note 11 shows the impact of “F12-F14 Rate Smoothing” (the postponement of recovery of costs by order in council cancelling the 2012 BCUC hearing into BC Hydro’s rates). That measure added \$160 million to the amount Hydro must collect in F15-16, or a 4.2% increase in total revenues.

p. 10 note 12



IPP contracts will add \$135 million to the revenue requirement in F12-14, or an overall 3.4% rate increase.

p. 10 note 13

The cost of amortizing the accumulated deferrals is stated as \$130 million or 3.4%. There is no indication what the assumed amortization schedule is. This appears to be a based upon a very gradual paying-down of the deferrals.

The total amortization payments each year toward all of the deferral accounts is referred to as the “rate rider” component of the rates approved by the BCUC. (The Minister appears to be confused on this, according to recent comments where he seems to associate the rider with only a component of the deferral amortization).

p. 10 note 14

Total operating costs only contribute a 0.5% or \$10 million increase to Hydro’s revenue requirements. Thus if all other costs were stabilized, Hydro’s own cost of operating (salaries of employees, maintenance of its facilities, etc.) rates would only increase by 0.5% over the two years. This makes it difficult to understand why the Minister appears to believe that rate increases can be significantly mitigated by internal cost-control measures by BC Hydro.

p. 10 note 15

The total increase in BC Hydro’s revenue requirement from F14 through F16 is \$1 billion.

p. 11 note 16

This entire analysis is very conservative. For example, it projects relatively flat or stable electricity demand in BC Hydro’s service area, at 1% per annum after taking conservation measures into account. The load required by potential LNG facilities is not included. If it were, the cost pressures would be far greater.

p. 11 note 17

This bullet reflects the way the net cost of purchasing and using or re-selling IPP power is pushing rates up. By F17, most of the currently-contracted IPP projects will be operational. As new projects come onstream they push rates up. Once they are all operational, rates will tend to plateau, as this bullet says.

p. 11 note 18



As is noted above, this is a conservative analysis, and assumes a steady trajectory in capital additions and no Site C costs factored in.

p. 14 note 19

This slide shows the nasty facts of life. There are only three ways to deal with the increased costs. One is to raise rates. The second is to lower the revenue requirement (including BC Hydro costs and the contributions to government) – but as we have seen, Hydro's own operating costs contribute almost nothing to the rate pressures, so government would have to forego a huge amount of revenue. The third is to defer even more, as was done in 2012 when the rate increase hearing at the BCUC was cancelled by order in council and artificially low increases were imposed.

p. 15 (not numbered) note 20

This part outlines measures already taken by BC Hydro to rein in costs, including cutting operating costs, delaying capital projects, and eliminating 800 jobs for a net reduction of 650 positions.

p. 15 note 21

IPP contract management refers to the cancellation of a handful of IPP contracts which were not in compliance with their contractual or regulatory requirements. BC Hydro and the government have not disclosed the total number of IPP contracts which are currently in the works and under development where Hydro has reasonably sound contractual grounds to terminate its commitments.

p. 15 note 22

As this section tells us, there is relatively little that can be done to change the trajectory that is described in this document. The four components which dominate this consideration are the legally binding contractual obligations to purchase IPP power (on a "take-or-pay" basis – we pay for it whether we need it or not); capital projects which are needed and underway; the cost of postponing the increases which were needed in 2012 when the government cancelled the BCUC rate hearing; and the government's intention to collect the projected revenues from Hydro to help balance the provincial budget.

p. 16 note 23

This section describes the limited or problematic ways they could try to reduce the rate pressures: delay necessary capital maintenance and other investments and assume the risks that would flow from this; convince government to reduce its draw from BC Hydro; or try to reduce operating costs even more.

p. 16 note 24



This section contains a series of caveats and observations. The first two bullets under part 5 refer to the very conservative assumptions about cost pressures and interest rates. If either of these assumptions prove over-optimistic they would increase rate pressure significantly.

p. 16 note 25

Flattening rates in the near term means adding to the dead weight of deferral accounts (as in F12-14).

p. 16 note 26

After we get past the short-term surge rates will tend to flatten. (See note 17, above, on the impact of IPP contracts on the shape of the rate curve over the next several years).

p. 16 note 27

Here is a plea for the government to re-consider some of its revenue expectations from BC Hydro.

p. 17 note 28

Do we detect a suggestion that the government should step in and push the BCUC out of the picture yet again? This sheet discusses the risk that the BCUC might use some regulatory muscle to restrain some of the rate increases. Disallowing costs means that the government, rather than the ratepayers, have to eat the cost of some ill-advised policies (IPP contracts for power we don't need, and deferrals aka "regulatory accounts".

p. 18 note 29

Here's the nasty impact on the three major rate classes – industrial, residential and commercial. Fixed income households will be hurt the most.

p. 37 note 30

This graph shows the cost impact of IPP contracts, and shows the huge surge which flattens out starting around F18, when the projects which are currently contracted come onstream and make their contribution to rates.

p. 38 note 31

The status of the 130 IPP contracts. Most of these were exempted from regulatory review by the BCUC. 20 remain under construction, 9 are deferred or being downsized,



another 6 could also be deferred or downsized, and 4 could be terminated in addition to the 10 already terminated.

p. 39 note 32

“Contract management” is a euphemism for taking measures to try to limit the financial damage caused by the IPP contracts. “COD” means Commercial Operation Date, and marks the start of BC Hydro’s obligation to pay for the contracted deliveries of energy from the IPP.

Existing Electricity purchase Agreements commit BC Hydro to pay \$52 billion to IPPS, and most of that represents projects which have not yet come into operation (\$32 billion). Deferring, downsizing or terminating some of the projects (presumably the ones referred to in the recent public statements from government and Hydro) would only save about \$1 billion in net present value, out of the \$7 billion in contractual commitments they represent.

p. 40 note 43

Realizing those savings is already factored into the projections in the document. See the footnote.

p. 40 note 44

This bullet acknowledges that shedding IPP deliveries would save money which would be lost on the market through the sales of surplus energy.